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MEMORANDUM FOR: Director of Central Intelligence

VIA: Deputy Director for Administration
Director, National Foreign Assessment Center

FROM: Bruce T. Johnson
Director of Data Processing, DDA

Clarus W. Rice
Director of Central Reference, NFAC

SUBJECT: Concerns Regarding SAFE

REFERENCE: Your memo dtd 21 March 1980, same subject
(ExReg 80-754/1)

1. This memorandum responds to your query of 21 March 1980, transmitting some questions about SAFE posed by your Science and Technology Advisory Panel (STAP).

2. Attached are answers to the specific questions raised by the STAP, presented in a narrative form reflecting the complexity of some of the issues they addressed. These answers represent the coordinated views of OCR and ODP, reviewed and endorsed by the DDA and the Director, NFAC.

STATINTL
STATINTL 3. At our meeting with you, now scheduled for 3 April, we propose that Mr. [REDACTED] Director of the Consolidated SAFE Project Office (CSPO), present a brief summary which addresses the four concerns you list in your memorandum, after which we will be prepared to elaborate on any of those or other STAP questions about SAFE. We will also have available Mr. [REDACTED] Chief of OCR's Systems Analysis Staff, to discuss NFAC's extensive efforts to identify user requirements.

4. We understand that Messrs. [REDACTED] STATINTL will be at the meeting, and welcome the opportunity to discuss their questions with them. We would like to suggest, however, that it may be profitable for us to spend some additional time with them subsequent to our joint meeting

SUBJECT: Concerns Regarding SAFE

with you, to supplement the one short briefing previously provided for them by SAFE's managers.

[REDACTED] STATINTL

Bruce T. Johnson

[REDACTED] STATINTL

Clarus W. Rice

CONCUR:

STATINTL

[REDACTED] Deputy Director for Administration

1/26/82
Date

STATINTL

[REDACTED] Director, National Foreign Assessment Center

26 MAY 1980
Date

Attachments: a/s

cc: D/CSPO

Response to Questions and Comments from Science and Technology Advisory Panel Memorandum of 18 March 1980.

CONCERN:

1.0 What steps are being taken to ensure that the Agency, rather than the contractor is in control of the technical aspects of the design of the system?

RESPONSE:

1.0 The Agency has in place a strong technical management team. The contract effort is under control and the needs of two Agencies are being addressed successfully. In recognition of the problems of technical communication and management control compounded by geographic separation a number of steps have been taken as follows:

- a) The Government has contracted for a system development rather than technical effort. The contractor is responsible for that development with government controls. The Government defines the functions and performance of the system as seen from a user's perspective. The development is performed to government requirements specification in accordance with MIL Stds. 490 and 1521 with government approval required of all specifications and designs. The Government approves all solicitation documents, evaluation plans and contract awards by TRW.
- b) Monthly formal project reviews are conducted by the Consolidated SAFE Project Office (CSPO). Technical staff interaction daily by phone and virtually continuously through travel maintains communication. The contractor has several permanent representatives located in Rosslyn, headed by a deputy project manager for East Coast operations.
- c) Delays in decision making are not geographical problems. They are problems associated with hard choices. An on-site representative could provide oversight and some guidance but those problems of larger scope are not one-man problems. A full time government representative is being considered for transfer to California. Travel will continue to be heavy in any event.

CONCERN:

2.0 How is SAFE management ensuring that a final working system has been developed from the continuing evolution of an operationally valid pilot system? How has SAFE taken advantage of the experience of similar, very large systems in their:

- 1) system architecture,
- 2) communication and control, and
- 3) changing performance requirements?

How is SAFE management ensuring that the system will:

- 1) make available data on operation and usage of the pilot system to guide development;
- 2) be able to modify both system functions and interaction capabilities so as to meet changing and evolving requirements; and
- 3) be able to add new functions and interactions so as to meet new requirements.

RESPONSE:

2.0 The "operationally valid pilot system" from which evolution will take place is the system which will be delivered at IOC in December 1982. Experience with the "Interim" SAFE system inaugurated in 1973 is being used in building the operational system. Data and usage patterns, message and query analyses as well as user reactions are used in requirements specifications, system sizing, function allocation and usage scenario development. In order to ensure adaptability to changing needs and growth, we have dictated the maximum use of general-purpose computers and software.

The system architecture proposed is the result of an 18 month design competition between TRW and GE and is based on TRW and Government experience with large systems. It distributes communications and control functions as well as file processing such that bottlenecks are avoided and parallel expansion is possible without redesign. New functions may be added at either the top or mid-level processors. Functions may be moved between levels to compensate for loading or usage changes.

We expect the initial system to have shortcomings. All major systems do. We expect, however, the initial system to provide significant improvements in service and value over the current environment.

2.0 - Continued

The cautionary note in the STAP memorandum is well founded. We should expect to take up to a year to introduce the system services after which the system will continue to evolve. The SAFE budget for 1982 and beyond recognizes this process.

CONCERN:

3.0 The SAFE user community consists of Intelligence Community analysts covering the full spectrum of research into foreign political, military, economic, scientific, and technological activity. Their effective use of this system and, ultimately, the quality of intelligence they produce rest on whether their real needs can be identified and satisfied by the system.

RESPONSE:

3.0 There has been more user involvement in the definition of the SAFE System than in any computer system of which we are aware. The interaction is continuing to refine and revalidate the system functions with the user. The CSPO maintains the balance of interactions with the contractor and - through OCR's System Analysis Staff and DIA's user points of contact - the users.

The Consolidated SAFE Requirements Document, which is the foundation of the technical development, was developed with and largely by the using NFAC and DIA community.

In the CIA this work began in 1972 and has included:

- o Pilot groups of 50 analysts defining useful functions
- o Pilot systems development in 1973/4
- o Pilot branches to date provide usage data
- o User workshops in 1975
- o 600 analyst survey in 1976
- o SAFE Procedures Development Laboratory
- o Project Upstairs/Downstairs with analysts
- o Newsletters
- o Direct interaction with CSPO and contractor of NFAC user representatives

3.0 continued

In DIA there are 29 points of contact in user organizations who provide advice on requirements and are fully informed of project status. An extended data collection effort from 1977 to the present has developed user requirements which have been staffed with top level user management.

All data gathered on the interim system usage and voluminous data on DIA's DIAOLS system have been forwarded to TRW. All prior study material has likewise been forwarded. These data are used to develop system design and flow threads.

Four former analysts are resident in the CSPO to focus and control the flow of requirements and to ensure that they are met. This group coordinates heavily with both Agencies.

We believe that a "community" system should be developed after SAFE and that SAFE would be a prototype for replication and potentially be a node in a community network.

Training of users, operators and instructors is part of the system development contract. Both the Office of Training and NFAC will have instructors trained to support continuing operations and expansion of the user community. The Office of Data Processing will have operations personnel trained as a part of this effort.

CONCERN:

4.0 How can the Agency make a reasonable evaluation of the current status of SAFE with major portions of the proposed operational capabilities either unspecified or uncommunicated to the Agency? For example,

- 1) the user command language and its parsing,
- 2) the user programming language,
- 3) the user editing languages, and
- 4) procedures for backup, including regeneration of derived files lost in crashes.

RESPONSE:

4.0 All operational capabilities required, including user languages and backup capabilities, are specified in the Consolidated SAFE Requirements Document written by the Government. The contractor's translation of those capabilities to system design are encompassed in numerous system, sub-system and element specifications. These are being developed on schedule with a normal amount of difficulty. Problems are addressed early in the process and corrective action is taken. For example, the plan for language development was delayed due to misunderstandings which required several meetings. This effort is now on the road to satisfactory resolution. Contract schedule, cost and management are all monitored for signs of difficulty.

CONCERN:

5.0 What actions are under way to insure that the Intelligence Community has access to CIA SAFE and that CIA SAFE has access to DIA SAFE as well as such systems as COINS and SOLIS?

RESPONSE:

5.0 The basic system requirement has been given the contractor to provide interconnection between the two Agencies. Five lines will be provided with expansion capacity to 25. The control of access, differing security clearance practices and control of limited access information will have to be worked out among the using and security organizations of the Agencies. With the security features of the system being developed, it is hoped that administrative procedures and software safeguards will be adequate.

CIA SAFE consists of:

- o The private files, mail files, route files, and the other specific files in SAFE are designed to satisfy the needs of individual analysts and have limited meaning to other analysts. The tools that SAFE provides to manipulate these files can, however, be put to use by other Intelligence Community Agencies to satisfy the particular needs of their analysts.
- o The major Central File (RECON/AEGIS) of the CIA portion of SAFE is under consideration for being accessible by Intelligence Community analysts. Portions of this file are already available on COINS.
- o The link between NFAC and DIA will be used initially as a tool to coordinate intelligence reporting between the two agencies. Eventually, file sharing may take place if deemed useful by individual analysts.

Generalized community access has not been envisioned in the initial system and presents additional security and, more vitally, loading problems. As already noted in response to question 3 we note that a "community" system should be developed after SAFE and that SAFE would be a prototype for replication and potentially be a node in a community network.

STATSPEC

CONCERN:

6.0 How will SAFE deal with open source material? Will [REDACTED] material, either finished publications or field reporting, be made available to the analyst through SAFE? How will SAFE deal with current newspaper and journal entries?

RESPONSE:

6.0 Newspapers, periodicals, and monographs may be input to SAFE by production and OCR analysts: the item is indexed into the computer data base and the item is stored either locally (drawer, etc.) or in the central microfilm store which is linked to SAFE. Commercial data bases such as MEDLINE, NYTIB, OCLC, NEXIS, SDC, will be accessible through an intermediary. Automatic conversion of selected "hard copy" open source data to machine-readable form is under development.

STATSPEC

[REDACTED] is an input with both finished [REDACTED] reports STATSPEC input supplied to SAFE. Wire services, if subscribed to, can be added either on-line or as separate collectors for periodic input to SAFE.

CONCERN:

7.0 What steps are being taken to ensure that SAFE will be designed to allow collaborative usage?

RESPONSE:

7.0 Teleconferencing will be a part of SAFE. This will be permitted between CIA and DIA as well as within each Agency.

The generalized routing function will also be used for staffing and coordination as well as for further dissemination of information.

As noted in question 5, there are security and access questions yet to be resolved.

CONCERN:

8.0 What steps are under way to ensure that in the procurement of major hardware items, these items will be compatible with existing Agency systems?

RESPONSE:

8.0 The question of compatibility is complicated by the fact that the CIA and DIA have different hardware. CIA/ODP uses IBM compatible equipment while DIA uses mainly Honeywell. Compatibility has been factored into the hardware Request for Proposal and a value has been established for cost evaluation. IBM compatible and Honeywell vendors thus have a cost advantage roughly equivalent to anticipated cost of supporting varied architectures.

Interconnection between SAFE and existing systems in each Agency is planned and is part of the contracted effort. The interface software for SAFE has been considered as a direct contract cost.

